

BEFORE THE
PUBLIC SERVICE COMMISSION OF
WISCONSIN

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33

Application of Badger Hollow Wind Farm LLC
for a Certificate of Public Convenience and
Necessity to Construct a Wind Electric Generation
Facility Capable of Generating Up to 118 MW, a 9827-CE-100
Collector Substation, and a 345 kV Generator Tie
Line in the Towns of Clifton, Eden, Linden, Mifflin,
and Wingville in Iowa and Grant Counties, Wisconsin

DIRECT TESTIMONY OF RICHARD JINKINS

Q. Please state your name and address.

A. My name is Richard Jinkins. I have a BS in Industrial studies from UW-
Platteville with an emphasis in electronics and a minor in mathematics. I
have an MS in Computer Science from UW-Madison.

In 2023 I was as appointed as a member of the Wisconsin Wind Siting
Council for the position designated as as “Non-compensated Landowner
Member”. I was a co-author on the Minority Report which is part of 2024
Wind Siting Council Report. The Minority Report is provided with my
testimony as Ex.-LEG-Grice-07.

I am retired from professional employment with over 30 years of experience
in research and development for companies such as Digital Equipment
Corporation (DEC), Rockwell-Collins and Raytheon. My work experience

1 included real time data analysis and creating displays of the type used to
2 support the research I will be discussing in this testimony.

3 In addition, I have a commercial multi-engine pilot's license and am a
4 Certificated Flight Instructor (CFI). Through flying and flight training, I
5 have become familiar with symptoms and causes of motion sickness and
6 vertigo.

7 My home is at 1086 Enloe Road in Rewey, Wisconsin. But I cannot live there
8 anymore.

9
10 **Q. On whose behalf are you testifying?**

11 A. I am testifying on behalf of our family, consisting of myself, my wife Patricia
12 (known as Pat), our adult children, Robert and Katherine, and their current
13 and future families who will all be impacted if they occupy the family farm.
14 First and foremost, I am a farmer and concerned for my family and others in
15 rural Wisconsin who are being saddled with the impacts of industrial energy
16 sprawl across rural communities

17
18 **Q. What is your interest in this matter?**

19 A. My central interest is my desire to protect my family's health and to protect
20 our home and family farm from further harm from the effects of industrial
21 scale wind turbines.

22

1 **Q. Describe your property and its use.**

2 A. Our family farm has been occupied and managed by my family for over 175
3 years, since my forebears came from England in early 1848 and acquired
4 their first 40 acres. They acquired those acres before Wisconsin was a state.
5 The farm has been in my family for over 175 years. The 40 acres acquired in
6 1848 has expanded, over time, to a property now comprised of 400 contiguous
7 acres in western Iowa County in the Town of Mifflin. (MAP?). My father died
8 when I was 4 years old, leaving me to take over the farm after my
9 grandmother passed away in 1976. I have lived there since 1976, farming
10 full time at times and working off the farm as well, as indicated earlier in my
11 testimony. I spent a lot of time studying farming, sustainability, nutrients,
12 micronutrients and soil structure to rebuild the soil after years of misuse
13 when it was rented out by my grandparents.

14
15 The property is primarily agricultural fields but also includes wooded areas
16 that provide hunting and recreational opportunities for wildlife observation
17 or hiking. My family has spent many hours enjoying the wildlife in the woods
18 and fields of the farmland property. Our farm is not just real estate to us. It
19 holds family historical value because it has been in my family for seven
20 generations. It represents both the heart of our family and a potentially
21 valuable resource for the future. My children were raised on the farm. My
22 wife and I had planned to build a house where we could retire. We

1 contemplated the house would be a family retreat for holidays and summer
2 gatherings as well as our home.

3
4 **Q. Has your ability to occupy and use your property been affected by wind
5 turbines?**

6 A. Yes.

7
8 **Q. How?**

9 A. We have moved out of our home. And when we are at our home and wind
10 turbines are operating, it ranges from unpleasant to insupportable.

11 Some of the personal effects that I and other members of my family have
12 experienced and that I associate with the wind turbines are nuisances that
13 range from mild to significant. These are things like increased tinnitus,
14 sinus pressure and headaches, sleep impairment and transient cognitive
15 effects, such as being unable to perform tasks or computations that are
16 normally easily completed – “brain fog.” My son, for example, experiences
17 sinus pressure and pain as well as headache and sleep disturbances when he
18 is at home. To avoid these symptoms, my son rarely stays at the farm for
19 long. This is especially unfortunate for him because he is an artist and his art
20 reflects the beauty of the driftless area as well as his more immediate
21 surroundings on our farm.

1 The effects that my wife Patricia (Pat) experiences are, by way of contrast, of
2 a different order. They can be acute and severe, and can come on suddenly.
3 Though it is impossible to see the turbine blades from our home and their
4 sound is not audible at our home, Pat suffers at home when the turbines are
5 running. Though she experiences the shared common symptoms of cognitive
6 deficit, headache or sinus pressure, she also experiences balance disturbances
7 or dizziness that require her to hold onto furniture or the wall and maintain
8 what she calls “three-point contact” to assure that her lack of balance does
9 not end in a fall. Many days when the wind is from the northwest or
10 southwest, her vertigo and nausea are crippling and I find her curled up on
11 the floor wedged against a wall with her eyes closed. Our previous strategy
12 for dealing with this was to leave the farm to go to Platteville or Dodgeville
13 and stay away from the farm until the winds subsided. That is not any way to
14 live if you can avoid it. For her well-being, we have rented an apartment
15 away from the farm so she can have a refuge. This is a major expenditure
16 but is necessary to preserve her health. She comes back to the farm only
17 when it is calm or wind speed is very low.

18
19 **Q. Have you thought of any strategies to be able to live on your farm?**

20 **A.** Yes. Despite all of these effects we have tried to figure out a way to come
21 back to the farm. We have considered building a home that is partially
22 earth-sheltered and planting acres of evergreen trees as buffer. We have

1 been investigating whether that kind of shielding would allow her to be there,
2 even though she might have to often confine herself to the earth sheltered
3 home to protect herself.

4 With additional turbines on all sides of the farm from BHW, this will no
5 longer be an option for us. If the additional turbines are approved and built,
6 we will be forced to consider moving permanently from the property.

7
8 **Q. Is there anyone else that you know of who has moved because of the health**
9 **impacts of IWTs?**

10 A. Yes. Ex.-RPJ-Jinkins-2r is constituted of statements of three people who
11 have moved because of Shirley Wind. I anticipate that another acquaintance
12 will be filing an affidavit or other statement on the ERFs site indicated that
13 they have also vacated their home because of similar symptoms.

14
15 **Q. To what do you attribute having to move out of your home?**

16 A. I attribute it to the impacts of certain infrasonic impulses, specifically
17 barometric air pressure impulses emitted as extremely short spikes at
18 infrasonic rates under 1 Hz. Monitoring and recording equipment disclose
19 these kinds of spiked impulses to be associated with certain IWTs such as those
20 at Red Barn and Shirley Wind. Dr. Jerry Punch has labeled these impulses
21 “Spiked Pressure Pulses” or SPPs and is submitting explanatory testimony on
22 SPPs and other audiological impacts.

1 What Dr. Punch testifies about are the symptoms that some people experience
2 when low pressure frequency waves interact with tissues and fluids in the
3 inner ear. These structures in human beings detect head movement and
4 gravity. Effects on these tissues can lead to dizziness, disorientation or
5 vertigo. As with other phenomenon that cause motion sickness, different
6 people are differently affected.

7
8 **Q. Do you believe SPPs to be a phenomenon distinct from the general category**
9 **labeled “infrasound?”**

10 **A.** Yes. Infrasound is commonly defined as less than 20 Hz, so SPPs appear
11 within a subset of what is labeled as infrasound. Separate from the audible
12 sounds recognized to be associated wind turbines, IWTs emit very low
13 frequency pulses. The pulses that Dr. Punch has focused on have been
14 measured to correlate perfectly with turbine blades passing the tower. The
15 pulse is generated not as a sinusoidal sound wave, but rather as a spiked air
16 pressure pulse (SPP). SPPs are associated with turbine blades rotating at a
17 rate of 1Hz or less.

18 The approximate rates for IWTs that I have measured are: Montfort-1hz,
19 Shirley Wind-.7Hz, Red Barn 0.5hz. Ex.-LEG-Grice-07, p. E- 17. SPPs are able
20 to travel further with much less attenuation due to having a significantly lower
21 frequency than audible noise.

1 SPPs affect sensitive structures within the ear that are responsible for balance
2 and hearing and are, thus, sensory organs connected to the brain.

3 Large wind turbines such as those at Red Barn and those planned for BHW
4 cause distinctive pulsatile pressure fluctuations at frequencies in the 0.1 to 1
5 Hz range. This range is identified in ISO 9996 to be linked to motion sickness
6 due to "perceived or actual oscillations". These pulses occur at frequencies in
7 what is referred to as the "nauseogenic range" because stimulation at this
8 frequency range disrupts the balance sensors of the body and causes many
9 people to have balance issues and to become nauseated. No other power
10 generation equipment produces these unique, repetitive acoustic pressure
11 pulsation emissions at frequencies below 1 Hz. These very low frequency
12 barometric/acoustic pressure pulsations have been documented and confirmed
13 present in homes vacated in Shirley, WI near the large wind turbines, where
14 serious adverse health impacts were reported which are consistent with motion
15 sickness and kinetosis.

16
17 **Q. How did you learn about SPPs?**

18 **A.** In 2021, knowing that wind turbine projects were planned for our area, I
19 started to do internet research on impacts. I found that the Wisconsin Brown
20 County Board of Health had voted to declare the Shirley Wind Turbines a
21 "Human Health Hazard," I went searching for more information. I found the
22 2012 Shirley Wind Report on the PSC ERF system that detailed the emissions

1 that had been found in all 3 of the vacated homes. Ex.-RPJ-Jinkins-3r. After
2 reading the report I contacted David Enz, whose family had vacated their home
3 because of Shirley Wind. I asked Mr. Enz if I could go to his home to see
4 whether Pat or I experienced the kinds of effects that had led him to decide to
5 vacate. Mr. Enz required me to give him assurances that we would not hold
6 him or his family responsible for effects we might experience at his vacated
7 home. With those assurances, he gave Pat and me permission to visit and stay
8 overnight in their home to try to figure out for ourselves whether it could be a
9 problem to be around IWTs.

10 When we went up to Shirley the first time, the winds were light, and we did
11 not perceive an impact. The second time we went to Shirley it was windy, and
12 Pat experienced vertigo very badly. Pat was in the kitchen, slowly moved to
13 the corner of the room as she started to feel dizzy, and eventually just slumped
14 down in the corner on the floor. We had to leave the home. I helped her up
15 and we left. We went to Green Bay, removing ourselves from the area, and
16 Pat's vertigo symptoms disappeared.

17 We went back to the home after being in Green Bay. We did not yet accept
18 that Pat's episode, which was consistent with the kinds of symptoms indicated
19 by the Enz family that had vacated the home, was caused by the turbines. We
20 needed more information for confirmation. When we went back it was still
21 windy, and the vertigo came back for Pat. We left the home and the area, and
22 the vertigo went away.

1 I decided to try to get more information. While investigating what could be
2 causing the problems, I found other professionals such as Robert Rand, who
3 was one of the authors of the Shirley Wind report. Ex.-RPJ-Jinkins-3r

4 To test what might be going on in the Enz home I purchased equipment from
5 Rand Acoustics so that I could measure the emissions from the wind turbines
6 and document what was going on. At the Enz home I validated my equipment
7 by taking frequency measurements. Those measurements confirmed that my
8 equipment was working and that I was operating it correctly. The
9 measurements validated what my equipment and operations by producing
10 measurements identical to those in the Shirley Wind report.

11 The graphs in the Minority Report of the Wind Siting Council, Ex.-LEG-Grice-
12 07, p. E-24 summarize my recorded data from Shirley Wind for November 13,
13 2023. That data includes the beginning and ending of a scheduled shutdown.

14 I had received notification of the planned shutdown from another homeowner
15 who had vacated a home in the Shirley Wind area. The homeowner had
16 received an email notifying of when Shirley Wind would be shut down for
17 maintenance. I set up the equipment so that I could compare the emissions
18 when turbines were off versus when they were on. When the turbines are in
19 operation, the SPPs were evident. When they were off, the SPPs are absent.

20 Using the equipment I had validated at Shirley Wind, I also collected data
21 from 3 different locations near Red Barn IWTs using the same methods. Data
22 from these locations is graphically presented in the Minority Report p. E-25,

1 Figure 3. Ex.-LEG-Grice-07, p. E-25. That data in the Minority Report
2 presents data recorded on January 31, 2024. Based on visual observation of
3 when the turbines were and were not operating that day, the Minority Report
4 confirms that SPPs are present when the turbines are operating, and absent
5 when they are not.

6 Since then, I have set up remote visual monitoring of the wind turbines so that
7 I can validate on an ongoing basis the relationship between operation of the
8 wind turbines and SPPs being received in the home. The SPPs are never
9 present unless the turbines are turning.

10 I now document the presence or absence of SPPs with ongoing monitoring and
11 ongoing visuals of the wind turbines, and have made these available on a
12 YouTube channel that presents both the SPPs and the contemporaneous
13 camera video of the wind turbines in real time.

14
15 **Q. How do you know you are exposed to SPPs?**

16 **A.** We know because we have measured them. We are able to measure SPPs from
17 the Red Barn Turbines, which are nominally rated at 3.4 megawatts (MW), in
18 our home, even though our home is in a valley and over 4 miles from the
19 nearest Red Barn turbine. Because we are down in a valley, we cannot see any
20 of the Red Barn IWTs from our home. Despite that distance and being visually
21 shielded from views of the Red Barn IWTs, we have been forced to move out

1 because my wife is one of the people whose physiology leaves her highly
2 sensitive to these impulses and who suffers severe reactions.

3
4 **Q. Why do you believe that SPPs will be emitted by BHW?**

5 A. The blades will spin at rates less than 1 Hz.

6
7 **Q. What are you asking the Commission to do?**

8 A. I am asking that SPPs as defined by Dr. Punch not be imposed on any
9 landowner who does not consent. My family does not consent. The
10 Commission should not issue an order that permits those emissions to cross
11 onto the private property of people who do not agree to be exposed to them.

12 The proposed Badger Hollow Wind IWTs will be larger than any land based
13 IWT now operating in the USA. Neither my family nor anyone else who does
14 not consent should be forced into an experiment to find out how the very
15 powerful SPPs that BHW will produce will affect the people around them.

16 It appears that the only way to escape these emissions is for the Commission
17 to deny the Application. That is what it should do.

18 If the Application is approved the PSC should require the operator to fund
19 independent measurements of SPPs consistent with the equipment and
20 protocols used in the Shirley Wind report. Measurements should cover a
21 minimum of 24 hours for 60 days within the home of any residents who are
22 affected.

1

2 **Q.** Does this conclude your direct testimony?

3 **A.** Yes.