

# The Secret, Silent Wind-Power Peril (Part II: Nina Pierpont and ‘Wind Turbine Syndrome’)

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## Nina Pierpont paved the way

This is the Wind Turbine Syndrome (WTS), a constellation of symptoms first given a name by the brilliant young MD/PhD, Nina Pierpont. She followed up her astute and compassionate observations of turbine neighbors around the world with epidemiological research, using a robust case-crossover statistical design: subjects experienced symptoms that varied with [proximity to the turbines](#). When the same subjects were placed some distance from the turbines, their symptoms abated; returning to the scene brought the symptoms back.

Pierpont found that the 1.5-3.0-MW industrial wind turbines she studied wreak these adverse health effects on about 10% of those living within 2km (1.25 miles) or more. Later studies place the percentage of people affected at 20-40% or more. Even at “just” the 10% level, this would never be tolerated by politicians or regulators with regard to peanuts, air emissions or water pollution.

As with seasickness, not everyone is similarly affected. But for many, the experience becomes literally intolerable. Most vulnerable are the young, the old, and those who are especially sensitive to stimuli – including the autistic, those with a prior Post Traumatic Stress Disorder (PTSD), and some of us who have retreated to rural areas for just that reason.

I personally remember the mother of a young, blind autistic boy. Worried about how her son might respond to IWTS proposed for installation near their rural Indiana home, she decided to explore her question by driving with him toward one of the already up-and-running Big Wind “farms” some forty miles north. This “wind factory” had been inserted in an area that for generations had been a breathtakingly open sweep of endless farmland south and east of Chicago.

When mother and son were still miles away from the turbines, which of course she could see although her son could not, he began to whimper, holding both hands to his ears. Writhing with increasing discomfort, he eventually became distraught, in a panic, shouting in his own language and careening against the confines of the front seat, pleading with her to turn back, go home, get him out of there!! Which she did that day. But she was powerless to stop the Big Wind installation coming to their backyard – and into her young son’s already severely impacted life.

Michigan State University noise engineers explain that “Inaudible components can [induce resonant vibration](#) in liquids, gases and solids, including the ground..., building structures, spaces within those structures, and bodily tissues and cavities – potentially harmful to humans.”

Pierpont hypothesized that, in addition to these bodily sensations, a significant pathway from ILFN to symptoms includes [disruption to the balance mechanisms](#) located in the inner ear.

## **Research results – and Big Wind response**

Audiological and acoustical consultants Jerry Punch and Richard James provide an excellent review of the recent research findings linking ILFN from IWTs with [effects on health](#) and quality of life.

In particular, Punch and James describe fascinating basic research conducted at the Washington University School of Medicine by [Dr. Alec Salt](#), Otolaryngologist, which supports the biological plausibility of Pierpont's hypothesis.

By focusing on distinctions of anatomy and function between the inner hair cells (IHCs) and outer hair cells (OHCs) of the inner ear, Salt and colleagues found that Infrasound and low-frequency noise signals reach the brain via OHC displacement, leading to unfamiliar and disturbing sensations outside the auditory realm paralleling Wind Turbine Syndrome victim complaints. As utility-scale wind turbines increase in size and power, the blade-pass frequency goes increasingly deeper into the nauseogenic zone.

Installed turbine size is indeed trending upward, with a lot of money riding on keeping the science under wraps or under the radar of public awareness, and regulations to a minimum.

When Denmark's environmental protection agency proposed severely tightening turbine noise regulations to protect turbine neighbors from ILFN (May 2011), the Vestas CEO wrote the DEPA Minister: Turbines send out ILFN; the bigger they are the more intensely they do so. It isn't technically possible to curtail the ILFN output. Not only would your new standards serve as an unfortunate model which might be copied by other countries.

More simply, "Increased distance requirements cannot be met whilst maintaining a satisfactory business outcome for the investor." DEPA folded, in fact turning instead to looser standards, "likely to be copied by other countries," to the detriment of thousands of people.

The European Platform Against Windfarms (EPAW) and the North-American Platform Against Windpower (NA-PAW) – representing a total of nearly 600 associations from 26 countries – then put out a [press release](#) citing the exchange and criticizing DEPA's manipulation of noise measurements to advance wind industry interests, to the detriment of people's health.

But the potentially increased endangerment of tens of thousands of turbine victims around the world was somehow deemed unworthy of widespread media attention, and Big Wind's central players ramped up their game plan undeterred.

## **Shadow Flicker**

While turbine health impacts due to ILFN radiation may be the least intuitively obvious, another frequently disturbing and often-minimized assailant is Turbine "Flicker" – a strobe-like effect caused by turbine blades alternately blocking and allowing sunlight to sweep the land after sunrise and before sunset. It can "pull your attention in the direction it's moving, making you dizzy, even [sick to your stomach](#)."

Environmental impact statements will tell you that "Shadow Flicker only impacts objects within 1400 meters of the turbine" – but 1400 meters is 0.87 mile, greater than 15 football fields placed end to end!

The common reassurance that "any issue pertaining to flicker is easily remedied" is at-best poorly thought out, at-worst deliberately false and misleading, and in any case dead wrong.

At a public forum in Fairhaven, MA, where an established neighborhood of some 6,000 people would soon host two 1.5 MW turbines, to be erected within ecologically sensitive salt marshes surrounding a quiet estuary, wind developer Sumul Shah [brushed aside a question](#) about Flicker saying: "Not to worry. It occurs mostly before 7am."

What!? “Shadow Strobing” results from rotating blades passing between the sun and any object which the sun would otherwise illuminate. When the sun is directly behind them, the blades of 40-story-tall wind turbines throw extensive shadows that skim rhythmically and repeatedly across buildings, trees, roadways, lawns, meadows, ponds – and people.

The direct impact extends to nearly a mile from the turbine – long after sunrise, and again long before sunset – during those magical early and late hours that photographers love, when low light washes the landscape. Jerking flashes ricochet yet further when the blade shadow strikes anywhere within view shed – strobing rock faces across the valley, lakes and ponds in between, or trees across the park.

### **Sleep disturbance and stress-related illness**

Alongside the less familiar ILFN and landscape-strobing turbine assaults, sleep deprivation and stress-related symptoms are the most common health complaints of IWT neighbors. This is not due solely to the turbine sound volume (as some might expect), but [also to its characteristics](#): constantly fluctuating with “swishing” or “thumping” sounds, akin to low-flying jets or the rumble of helicopters, “freakish, screeching sound sludge,” rhythmic, repetitive, throbbing and percussive. It is unnatural. People say the noise gets into your head, and you can’t get it out.

Sleep may be disturbed from yet another non-intuitive angle. In their “McPherson Study,” Ambrose and Rand note that the 22.9 Hz tone considered part of the signature IWT acoustic profile “lies in the brain’s ‘high Beta’ wave range (associated with alert state, anxiety, and ‘fight or flight’ stress reactions). The brain’s [‘frequency following response \(FFR\)’](#) could be involved in maintaining an alert state during sleeping hours....”

As enormous industrial wind turbines spread around the world, World Health Organization (WHO) 2009 Noise Guidelines emphasized that any investigation into health impacts must include the equally [significant indirect effects](#).

Advising the Falmouth, MA Board of Health, Dr. William Hallstein wrote: “[All varieties of illnesses](#) are destabilized secondary to inadequate sleep: diabetic blood sugars, cardiac rhythms, migraines, tissue healing. Psychiatric problems intensify... all in the ‘normal’ brain. Errors in judgment and accident rates increase.”

Imagine bombarding a hypersensitive autistic child with strident, unpredictable, unnatural noise. Imagine our veterans struggling with PTSD, the throbbing drone of the turbines re-igniting anxiety and terror – endlessly through the years once they are back home. Imagine what happens when being “safely” back home instead predictably brings physiological destabilization: nausea, ringing in the ears, vertigo, panic attacks, memory and concentration loss, incapacity.

Imagine fighting Goliath in compromised health: lives given over to complaint protocols, sound measurements, lawyers, delays, appeals, desperate pleas for relief. At best, it becomes a challenge to re-frame every encounter, either to educate a potential ally, or to pretend this isn’t the center of your life.

For some, it becomes a life of learned helplessness: having accepted that [nothing will bring relief](#), they give up trying. With nowhere to go, the dog sits back down on the tack. Other families and individuals ... devastated, having lost their health, jobs or farms ... return their keys to the bank, sell their homes at a fire-sale price, or simply pack up and flee.

How have we been brought to such an extraordinary betrayal of basic human rights and social justice – a Kafkaesque world where corporate, local and state government personnel ignore and elude victims’ pleas? It is a tale of money and power shunting aside integrity and compassion, of well-intentioned individuals who don’t do their homework, of a new industrial health crisis shunned by news media who are supposed to educate, inform and protect.

In November 2014, after a four-year investigation, the Brown County, Wisconsin board of health declared that the

preponderance of evidence showed the Shirley Wind Project is a [human health hazard](#). The news went worldwide, but the local *Green Bay Press Gazette* ignored it for almost two weeks.

Physician and BOH member Jay Tibbetts said, “I don’t think the average person in the United States hears anything about this issue. For some reason the [news media](#) doesn’t seem to want to cover it.

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Helen Schwiesow Parker, PhD, is a Licensed Clinical Psychologist and a Past Clinical Supervisory Faculty member at the University of Virginia Medical School. Her career includes practical experience in the fields of autism, sensory perception, memory and learning, attention deficit and anxiety disorders, including panic disorder and PTSD. This is Part II of a three-post series. [Part I](#) of this series was posted yesterday, February 7. [Part III](#) will be posted tomorrow, February 9.