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# Unity of knowledge

*Leading experts pool their most recent understanding of the harm of industrial wind turbines on human health*

Piece by piece, presentation by presentation, the foundation upon which industrial wind industry and much of Ontario's *Green Energy Act* sits was taken apart and dismantled this past weekend.

The industrial wind turbine business was always on shaky ground. It has been promoted by governments eager to be seen to be doing something about the western world's reliance on fossil fuels—oil, gas and coal. In many respects wind energy policy has been a public relations exercise fuelled by governments' willingness to spill billions of taxpayer dollars into developer's pockets. They do so with a mix of wishful thinking and willful blindness in the expectation that technology leaps will fill in the significant operational gaps before most folks realize intermittent generating sources don't work on a large scale.

None of these folks anticipated, however, that industrial wind turbines would actually make people sick. After the first international symposium in Picton on the weekend, there can be little doubt remaining. Several analogies were made about how the fight against the harmful effects of smoking tobacco began with just a few voices in the medical and scientific community. It would take decades, however, before governments would listen and begin to take action. The esteemed participants of the Picton gathering fervently hope it doesn't take as long for governments and the broader public to understand the harm caused by industrial wind turbines.

Dr. Bob McMurtry, a physician and former deputy minister of health in Ontario, gathered doctors, scientists and researchers from around the world to Picton in reveal their findings and share the latest information on the impact of industrial wind turbines in what he termed a "consilience" or unity of knowledge.

**WHAT WE LEARNED**

Several alarming messages emerged. Every animal with a functioning hearing organ, including humans, is at risk of being affected by the low-frequency pulsating sound emitted by industrial wind turbines. Those most acutely affected tend to be disposed to motion sickness or car sickness— but even those without these symptoms may be responding to the noise, whether they are aware of it or not.

The low-frequency and subsonic (below the hearing range) noise from wind turbines has a demonstrable effect on the ear and hearing mechanisms. The most acute symptoms include nausea, dizziness and sleep disturbance. It is now becoming evident, however, that even those who don't suffer these particular symptoms are likely realizing some harm. These hearing mechanisms are closely related to language development, learning and cognitive organization— as the fine components of the ear become stressed, learning in children becomes impaired, concentration becomes harder for adults, and sleep is disrupted.

Evidence was presented that people likely don't "get used to" wind turbine noise. Even those who claim not to hear noise appear to endure physiological stress related to the pulsating low frequency noise.

Among the more worrisome bits of information gleaned from the weekend conference was that current assumptions of safe setbacks are likely wrong. Many opponents of large scale industrial wind factories have pressed for setbacks from homes of at least (1.25 miles) two kilometres. (*Ontario's Green Energy Act* prescribes setbacks of just (about 1850 ft) 550 metres.) But studies done by sound experts John Harrison and Richard James now show that in some conditions— over water and rocky terrain and beneath low cloud cover—the low-frequency noise can travel up to (about 9 miles) 15 kilometres.

Keynote speaker Dr. Nina Pierpont, the author of *Wind Turbine Syndrome*, explained that "our brains don't function well" when subjected to long-term sustained low thumping noise from industrial wind turbines.

According to her research 90 per cent of those in her test sample exposed to the "pulsating tone" of the wind turbines suffered from cognitive performance deficit as compared to a control group. Generally they had more difficulty with reading, spelling, math, memorization and recalling the plots of television shows.

Pierpont's findings extend beyond cognitive issues. She has also observed that stress to the hearing organ is linked to balance, which has a close relationship to emotions including panic and fear. These are the same triggers that cause in some a paralyzing fear of heights.

She observed that two-thirds of her test group—14 of 21—presented “disturbing symptoms” such as the need to flee, difficulty breathing, and panic.

Dr. Arlene Bronzaft recounted her groundbreaking studies on noise and learning done three decades ago in New York City. In her work she documented how children on one side of a school nearest a busy train line suffered from measurable learning impairment compared with students on the opposite side of the school. Her work led to legislation and changes in the classroom to ensure students has a quiet place to learn, not just in New York, but across the U.S..

She urged the physicians and scientists in the room to continue to produce evidence of the harm of industrial wind turbines.

“You need the studies and the research,” said Dr. Bronzaft. “You need to teach. You need to be political. But I ask you not to give up if you are successful in one area—there are communities in Wyoming, Nebraska, Kansas, Maine and across North America with small groups who are fighting these developers. They will continue to need your help.”

Alec Salt heads the Cochlear Fluids Research Laboratory at Washington University in St. Louis. He illustrated that sound emitted from industrial turbines is many times greater than the audible hearing range—prompting him to work through the answer to his own question—does sound that you can’t hear hurt you?

Salt’s research has shown how low-frequency sound affects the transport mechanism of the ear and hearing structure.

“A big part of the sound created by an industrial wind turbine can’t be heard,” explained Salt. “That doesn’t mean it can’t hurt you. When these structures move frequently and dramatically it can have an effect on a range of symptoms.”

He asked the audience to consider this proposition against other human senses.

“Apply this notion to taste, smell, sight and touch,” said Salt. “Does anyone believe that you have to taste something in order for it to be harmful? We know that ultraviolet light (light we can’t see) can have a dramatic effect on skin and other organs. The notion that we can’t be harmed by sounds we can’t hear is nonsense. We need to stop ignoring the effects of infrasound on people.”

He is less clear about whether symptoms persist after exposure to industrial wind turbine infrasound is discontinued.

Sleep expert Dr. Chris Hanning travelled from the U.K. to explain the effect of industrial wind turbines on sleep. He observed that the need for sleep is universal among animals—that poor sleep leads to a range of disorders from obesity to heart disease.

“Disrupted sleep over time leads to heightened states of frustration, anger and feelings of loss of control,” said Hanning. “This noise is viewed as an invasion of the place in which we go to retreat from life, where we go to feel safe.”

He also observed that the pulsating tone when measured on a spectragraph appears very similar in pattern to a fire alarm: “the tone we use to arouse people from sleep and warn them of danger.”

He has found that the persistent low frequency throbbing of industrial wind turbines is more disruptive to sleep than traffic, aircraft and industrial noise. The only thing worse, according to Dr. Hanning, is the rhythmic bass pounding from a loud stereo or “boombox” nearby.

Like Dr. Bronzaft, Hanning urged his colleagues in the room to continue to produce research and studies. He said illconsidered government policies have created thousands of guinea pigs around the world.

“There are enough folks being affected right now that together we can do the work that government and industry should have done in advance,” said Hanning.

**MARS HILL**

After the physiological mechanics of the effect of industrial wind turbines had been described the conference turned to the victims. Dr. Michael Nissenbaum has conducted a controlled study of effects of industrial wind turbines on residents of Mars Hill in Maine. The subjects in his study live within 1,100 metres of an industrial wind installation consisting of 28 1.5 MW wind turbines. His control group consisted of 27 adults living on average 5,000 metres from the wind turbines.

Eighty-two percent (18 of 22) of those closest to the turbine reported “a new onset or worsened sleep disturbance” since the turbines went online. Only one of the 27 of those five kilometers away reported a new or worsened sleep disturbance. One hundred per cent of those closest to the turbines had considered moving away.

**JUDICIAL REVIEW**

Much of this evidence presented this weekend, will likely be used in January as Ian Hanna of Big Island takes on the Ontario Government in court. Hanna is arguing that the province failed to use the “precautionary principle” when it lowered and removed regulatory hurdles to developers of industrial wind energy through the Green Energy Act. The precautionary principle states that governments or organizations must ensure that its policies do not harm individuals or communities prior to enactment.

It seems clear from this weekend’s Picton conference that the province failed to meet this test.