

# GOVERNING

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## Riding High

Can green technology propel economic development?

Montana Gov. **Brian Schweitzer** astride a mammoth wind turbine.





# An Ill Wind Blows

With wind farms working to capture nature's energy, nearby residents are suffering.

**W**ind energy is blowing hot right now. Nationwide, wind farms are bringing renewable energy and jobs, such as in Montana, as detailed in *Propelling Growth*, p20. Overall, wind turbines in the United States generated 52 billion kilowatt hours in 2008, which is enough to serve 4.6 million households, according to the U.S. Department of Energy (DOE). And demand is growing: The number of wind turbines in the U.S. nearly doubled between 2006 and 2008, according to the DOE.

But it isn't all good, according to Dr. Nina Pierpont, who has studied families living near wind turbines. Pierpont found that there are enough negative effects to warrant calling them "Wind Turbine Syndrome," because the symptoms form a consistent pattern from person to person, she says. "A syndrome really means the description of signs and symptoms that occur together and are not yet tied together as a clear disease."

One resident of Mars Hill, Maine, which has hosted a wind farm since 2007, wrote to Pierpont about her experience: "The noise created by the turbines can be unbearable at times," says Wendy Todd. "It causes disruption to sleep patterns, stress and anxiety to most who live downwind of the project. For some it causes headaches, pressure or ringing in the ears, inability to concentrate, feelings of unease, and dizziness. ... I am not talking about a simple nuisance, this is about life-altering changes to the

says, "some being immediately sensitive, while others can barely detect anything." Swinbanks says he stood beside two people in a place where low-frequency noise was present; one person couldn't really hear anything, while the other felt ill and wanted to leave.

Pierpont's research also finds similar inconsistencies. Further, some of her subjects note that their symptoms come and go according to the wind's direction and strength, blade spinning speed, which way the turbines are facing and particular sounds coming from the turbines. Ultimately, Pierpont says, low-frequency noise or vibration tricks the body's balance system into thinking it's moving—like seasickness, as Swinbanks suggested.

Wind turbine companies have dismissed the problem, saying people are simply making the symptoms up because they just don't like the turbines. According to a February 2009 article in Ontario, Canada's *The Windsor Star*, Brian Howe, a consulting engineer in acoustics for HGC Engineering, said Ontario's guidelines for turbine noise are adequate and consistent with Health Canada studies, and that most people near wind turbines aren't complaining about the noise.

But Tracy Whitworth, a teacher in Clear Creek, Ontario, has multiple complaints: Her home sits among 18 turbines, all within a 1.8-mile radius and the closest about one-quarter mile from her back door. "What most don't understand is that it is the low frequency waves you cannot hear that are so debilitating to one's health," she says. "I have developed tinnitus in my ears. I hear and feel the pulsating of the turbines and buzzing in my ears. I also feel the pulsating in my throat and chest. I have nausea, dizziness, significant hearing loss, itchy eyes ... heart palpitations, achy joints, short-term memory loss, severe sleep deprivation on a regular basis."

The solution to the problem, say medical experts, isn't to stop harnessing wind's energy, but to place the turbines a certain distance away from where people live. In flat terrain, the turbines should be placed at least 1.25 miles away from where people are located, according to Pierpont, and at least 2 miles away in mountainous terrain, where the turbines are usually on ridges.

This distance from wind farms that residents should maintain, Pierpont says, is probably the most important thing for people to know. "When the wind farms are coming to their communities, they need to know what kinds of distances to ask for," she says. "I think government should be involved in having proper setbacks in place, because that's always a governmental issue whether local or state, and in funding further research." **G**



environment that can literally make people sick and change the way you live in your home and use your land. A large number of the families affected have considered leaving their homes."

In his testimony to the Michigan Public Service Commission in December 2009, Dr. Malcolm A. Swinbanks said low-frequency noise can induce feelings likened to seasickness. "Like seasickness, the sensitivity of different individuals varies enormously," he

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