



## Wind Power Questions and Answers

### **How Big are Wind Turbines?**

Wind turbines built in Searsburg, Vermont in 1997 are 197 feet tall and require no lights. By 2005, most U.S. installed turbines were 1.5MW or smaller. By 2008, 35% of turbines were larger than 1.5MW and require lighting to meet FAA regulations. Now, 2 to 3 MW turbines 400 to 450 feet tall requiring lights are being proposed for Vermont's mountains.

### **Is utility scale wind energy effective in reducing greenhouse gas emissions?**

Reports from areas that have been using wind turbines, including Denmark, Germany, Spain, England, and the western U.S. consistently show that on-shore wind turbines are a very expensive way to achieve minimal reductions in greenhouse gas emissions.

### **Does utility scale wind power replace coal, nuclear or natural gas power plants?**

A recent study shows that increasing reliance on wind power will require a shift from baseload power such as coal and nuclear, to more expensive peaking power which is primarily natural gas. The greatest reductions in greenhouse gas emissions are achieved in areas where wind power can offset coal power, which is not the case in New England. Because this region's coal and nuclear power plants cannot reduce power to accommodate intermittent wind energy, wind power cannot replace nuclear or coal power. In New England, wind power replaces other renewables or natural gas, but there is no evidence to support claims that wind replaces natural gas in a 1:1 ratio. Another study found that a more accurate ratio is 1:10; i.e. to replace 1MW of natural gas requires 10MW of wind nameplate capacity.

### **Are three-blade turbines the only option for making wind energy in Vermont?**

Exciting new designs for harnessing the wind are in development, including lower profile turbines that can generate electricity at lower and higher wind speeds. The current 3-blade designs are appropriate for flat plains away from residential areas and offshore. Vermont needs wind technologies that are appropriate for our terrain and topography.

### **If we don't have wind turbines, how is Vermont going to meet our energy needs?**

In the short term, the New England grid has excess capacity at low cost due to economic conditions. Hydro-Quebec is interested in selling electricity throughout New England, including Vermont. Vermonters are investing in local renewable energy for residences and communities. The lights will not go out if no big wind turbines are built on Vermont's mountains, but we do need to work together to develop solutions that work for Vermonters.

### **If we don't build as many wind turbines as possible as quickly as possible, won't we lose all the creatures anyway? Why should we be concerned about the environmental impacts of building big wind turbines on Vermont's mountains?**

Sue Morse, wildlife expert from Keeping Track, says wildlife are adaptable to the changing climate, while the threat to wildlife from habitat fragmentation is a serious problem. Unfragmented habitat should be protected wherever possible to enable the movement of species as the climate continues to warm. Wind turbine development in areas that are important to wildlife is more likely to further the decline of species rather than improve their chances of survival.

*Vermont Community Wind Farm is talking about using 1.5, 2.3 and/or 2.5 MW turbines for Ira/Poultney ridgelines*

*Green Mountain Power is proposing 3MW Vestas turbines 447 feet tall for Lowell Mountain*

## Wind Power Questions and Answers *(continued)*

### **What are the environmental issues associated with building wind turbines on mountains?**

Wind turbine construction on mountains is a major engineering project compared to construction on flat plains or rolling hills. One million pounds of dynamite was used to create the road network and twelve turbine sites in Lempster NH, even with a pre-existing road. Most proposals for ridgeline development in Vermont do not have pre-existing roads. Roads must be wide, permanent, and engineered for extremely heavy loads up to 200,000 pounds. Road building in high elevations can impact groundwater and result in erosion and stormwater runoff. Vermont's mountain tops contain mature forest canopies, wetlands, vernal pools, headwater streams, and unfragmented wildlife habitat. Operating turbines pose real risks for birds and bats. Blinking lights change the dark night sky of rural areas. Vermont's Agency of Natural Resources has opposed two wind projects and identified two areas proposed for utility scale wind turbine sites as Rare and Irreplaceable Natural Areas.

### **Will wind turbine development create jobs for Vermonters?**

Short term and in limited numbers, yes. Local contractors might be hired for logging and site preparation. Construction requires specialized work – blasting, engineering, road building, heavy construction, technical wiring – that is subcontracted to out-of-state companies. Operating industrial wind farms have few full time employees, focused on security. Maintenance is usually performed by specialized out-of-state subcontractors.

### **Will wind turbine development reduce taxes for host communities?**

Host town payments can only be used to offset municipal taxes, not school taxes which make up the majority of Vermonters' property taxes. Towns may have to pay attorneys for negotiating complex agreements, participating in extensive processes for town permits, and representing their interests in state permitting processes. While developers can use state and federal funds to help pay for their development costs, host towns get no such support and must use tax dollars instead. Fulfillment of payments to towns over the life of the project is dependent on the financial viability of the owner of the project and subject to the variables of the economy.

### **Is noise really a problem or is it just an excuse that people use when they don't want to look at them?**

A Wisconsin survey of people living within a half mile of an industrial wind facility found that 33% suffered from at least one of the following: sleep loss, headache, nausea, and stress. 25% said that their sleep was disturbed at least once a week. A study being conducted of residents living near a large Maine wind facility shows significant complaints of chronic sleep disturbances and headaches, among other bodily complaints, and high incidences of depression in people living within 3,600 feet of the turbines, compared to a control group living within approximately one mile. There are hundreds of case reports of other people from all over the world suffering from similar noise-related complaints. Many noise and health experts from around the world recommend distance setbacks of at least one mile. The American Wind Energy Association says "when a wind plant is sited in hilly terrain where nearby residences are in dips or hollows downwind that are sheltered from the wind – in such a case, turbine noise may carry further than on flat terrain."

### **Is the Vermont Public Service Board issuing decisions that protect public health and private property?**

In its 2009 decision approving Iberdrola's wind project in Deerfield, the PSB set as a standard that project-related sound levels at any existing surrounding residences should "not exceed 45 dBA(exterior)(Leq)(1 hr) or 30 dBA (interior bedrooms)(Leq)(1 hr)." The PSB standard for exterior noise should be at the property line, not existing surrounding residences to protect private property interests. The PSB's interior noise limit is insufficient to protect public health because it allows decibel levels to be averaged over an hour.

### **Will wind turbines have any impact on tourism or property values?**

Wind turbine proposals are already impacting individual property owners who are trying to sell their properties adjoining land under lease by wind developers. A study of property values that is often cited by wind developers who indicate there is no evidence of negative impacts in areas where wind turbines are proposed does show that there are issues with the salability of property close to utility scale wind turbines. Realtors and appraisers recognize that views are a top selling point for Vermont real estate. No studies have been conducted that are specific to Vermont and evaluate impacts on tourism or property values near 2-3MW wind turbines.