

Utility-Scale Wind in Vermont

Answers to Frequently Asked Questions

Will building utility-scale wind in Vermont have a significant impact on the ridgeline environment?

Vermont's only viable utility-scale wind turbine sites are located on ridgelines that are mountainous and heavily forested. Building utility-scale wind requires massive clearings (400ft or wider) for turbine bases, and miles of wide, industrial grade roads (16 - 36ft or wider). Some proposals for wind developments include up to ten miles of new roads atop ridgelines. These developments would bring fundamental changes to the ridges, and many undesirable environmental effects.

- **Stormwater Runoff** – Potential wind sites in Vermont are on mountainous terrain with steep slopes. The mountains contain headwater streams that feed drinking water supplies and critical aquatic and wildlife habitat. Building large scale industrial structures in these areas can create significant water quality degradation due to silt runoff during and after construction. (*Sheffield Wind Project, VT Environmental Court Case Docket No. 252-10-08*)
- **Habitat Destruction** – Construction of roads and turbines requires blasting of bedrock and outcroppings, clear-cutting of forests, trucking in huge quantities of fill and construction materials such as concrete and rebar, and construction of holding ponds and other permanent features. The result is the equivalent of an industrial site located in critical forest, wetland, and other habitats. The wilderness qualities of these areas are lost. (*Deerfield Wind, PSB Testimony, Hammond & Kilpatrick*)
- **Habitat Fragmentation** – Building the necessary infrastructure includes massive clearings that fragment wildlife habitats and significantly reduce the habitable area for bears and other wild creatures. (*ANR Deerfield Wind Comments to USDA*)
- **Impacts to Birds and Bats** – Recent studies of bats populations have found that many are attracted to the moving turbines, and are often killed due to the difference of air pressure around the blades. One project in West Virginia killed as many as 4,000 bats a year. Rotor tip speeds reach roughly 200 mph, and often kill close flying birds, including raptors that use thermals near ridges when migrating. (*“Researchers Alarmed by Bat Deaths from Wind Turbines”, Washington Post, 1/1/2005 & Bats and Wind Energy Report June 2005*)

Do wind turbines have health and safety issues?

The turbines proposed for utility-scale developments in Vermont are over 400ft tall. These large, moving machines produce significant noise, and create a safety risk to those in close proximity.

- **Wind Turbine Noise Connected to Sleep Disturbance** – Recent studies and reports have linked the audible and inaudible low frequency infrasound caused by wind turbines to changes in the cochlea of the inner ear, which can lead to sleeplessness and health problems. Worldwide, there are hundreds of reports of sleep disturbance among people living near turbines. (*Infrasound Research, Dr. Alec Salt, Ph.D. Washington University School of Medicine*)
- **Sleep Disturbance Leads to Disease** – Lack of or significantly interrupted sleep can lead to undue stress, headaches, heart disease and many other medical conditions. Many of these conditions are life threatening, and are reported by those living near turbines. In response, people around the world have had to flee their homes to protect their health. (*Dr. Shapiro MD Presentation, Lowell, VT 2/18/10*)
- **Turbines Create Safety Risks** – Turbines can catch on fire, throw blades thousands of feet and even completely collapse. Turbine manufacturers warn of these dangers in their operational manuals, and suggest staying over 1.5 kilometers (.9 miles) away from operating turbines. (*Vestas Safety Regulations for Operators and Technicians*)

What are the aesthetic impacts of building utility-scale wind in Vermont?

Since utility-scale wind projects are proposed for Vermont's mountain regions, the projects will be seen from many miles away. Proposed turbines are over 400 feet tall, and have to be lit at night to ensure air traffic can avoid the structures. At a minimum, the turbines on each end of the line must have red flashing strobe lights, and several in between must also be lit.

- **Viewshed Changes at a Distance** – Those far from the project will no longer see the pristine viewsheds Vermont is known for. Large towers along ridgelines will fundamentally alter this view. The result industrializes the area and interferes with the dark skies typical of Vermont. (*VCWF & GMP Simulations*)
- **Massive Change Up Close** – Utility scale wind turbines require industrialization of our ridgelines including large roads, clearings, blasting and other fundamental changes. Up close these projects can look similar to having blazed a highway across our ridgelines. (*Sheffield Construction Photos 11/12/10 & Mars Hill Construction Photos 10/28/2006*)

Will utility-scale wind turbines create jobs or will they harm Vermont's economy?

Building utility-scale wind turbines on ridgelines requires very skilled labor. Typically this skilled labor comes from a select few firms that are all located outside of Vermont. Operating these turbines requires only a handful of jobs. Most wind projects create about one new job for every 10 turbines. Due to the significant changes to Vermont's visual appeal, there may also be serious impacts on our tourism economy.

- **Impact to Tourism in Vermont** – Recent reports by the Vermont Chamber of Commerce show Vermont's tourism economy is directly linked to over \$1.6 billion in spending and over 60,000 jobs for Vermonters. Disturbing Vermont's image as the "Green Mountain State" may have a negative impact on this spending. Tourists travelling in areas with the proposed turbines will also be subject to all the human health effects noted above. Those who come here for peace and quiet and dark night skies will likely be disappointed and go elsewhere. (*"Issue Brief: Vermont Tourism Funding", Vermont Chamber of Commerce 2007*)

Do we need more electricity?

No. In fact, there is excess supply in the region. Recent reports indicate that there is no need for increased generation in Vermont. Much of Vermont's electricity generation already comes from "renewable" sources (Hydro Quebec) or other non-fossil fuel sources. ISO-NE reports that because of the economic downturn and adequate supply, the region has excess electricity. With the cost of photovoltaics projected to be at grid parity by 2015, Vermonters should focus on conservation and efficiency and prepare to build out new solar arrays where the electricity is used. (*Prof. Emanuel Sachs Data, Massachusetts Institute of Technology 2010*)

Will building utility-scale wind in Vermont have a significant impact on reducing greenhouse gas (GHG) emissions?

- **Most GHG emissions in VT come from heating and driving** – The vast majority of Vermont's GHG emissions (about 96%) come from the combustion of heating and transportation fuels. Very little GHG emissions in Vermont come from electricity generation. As a result, the optimal path forward for Vermont to reduce our carbon footprint is to focus on weatherization and transportation, not electricity generation. (*"Vermont Greenhouse Gas Emissions Inventory Update" Vermont Agency of Natural Resources, 9/2010 & US EPA Climate Change Data 2010*)

Are there other viable renewable energy alternatives to building big wind in Vermont?

Yes – solar works in Vermont. Vermont's solar resource is 620 times larger than its wind resource. Installing solar systems, whether home-based or community-scale "orchards", does not require clearing significant areas, bulldozing or blasting roads. Industry data shows solar's cost is on an historic downtrend, and should be equal to today's retail electricity rates in 2015, just 5 years away. (*National Renewable Energy Laboratory Wind Data*)