

Gas-powered motors on wind turbines?.

Written by EarthTalk® □ From the Editors of E/The Environmental Magazine.
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Dear EarthTalk: *I heard that some wind farms use fossil fuels to power their generators when the wind won't. Doesn't that defeat their whole renewable energy purpose? Why not let the wind power it or not? Also, I've heard that the low-frequency sounds generated by these turbines can harm people and animals. Is this true? -- Ryan Lewis, Plainwell, MI*

Indeed, one of the major drawbacks to wind power is the fact that, even in windy locations, the wind doesn't always blow. So the ability of turbines to generate power is intermittent at best. Many turbines can generate power only about 30 percent of the time, thanks to the inconsistency of their feedstock.

In order to overcome this Achilles' heel of intermittent production, some wind companies have developed back-up systems that can spin turbines even when the wind isn't blowing, thus optimizing and keeping consistent the power output. For example, Colorado-based Hybrid Turbines Inc. is selling wind farms systems that marry a natural gas-based generator to a wind turbine. "Even if natural gas is used, the electricity produced...is twice as environmentally clean as burning coal," reports the company. Better yet, if a user can power them with plant-derived biofuels, they can remain 100 percent renewable energy-based.

While some wind energy companies may want to invest in such technologies to wring the most production out of their big investments, utilities aren't likely to suffer much from the intermittent output if they don't. Even the utilities that are most bullish on wind power still generate most of their electricity from other more traditional sources at the present time. So, when wind energy output decreases, utilities simply draw more power from other sources—such as solar arrays, hydroelectric dams, nuclear reactors and coal-fired power plants—to maintain consistent electrical service. As such, reports the American Wind Energy Association, utilities act as "system operators" drawing power from where it's available and dispatching it to where it is needed in tune with rising and falling power needs.

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But just because generating wind power all day long isn't imperative doesn't mean that suppliers aren't doing all they can to maximize output. To wit, turbine manufacturers are beginning to incorporate so-called Active Flow Control (AFC) technology, which delays the occurrence of partial or complete stalls when the wind dies down, and also enables start-up and power generation at lower wind speeds than conventional turbines. The non-profit Union of Concerned Scientists lauds AFC for these capabilities, which in turn can help system operators create a more reliable electric grid less dependent on fossil fuels.

As to whether or not noise from wind farms can harm people and wildlife, the jury is still out. New York-based pediatrician Nina Pierpont argues in her book, *Wind Turbine Syndrome*, that turbines may produce sounds that can affect the mood of people nearby or cause physiological problems like insomnia, vertigo, headaches and nausea. On the flip side, Renewable UK, a British wind energy trade group, says that the noise measured 1,000 feet away from a wind farm is less than that of normal road traffic. Here in the U.S., a Texas jury denied a 2006 noise pollution suit against FPL Energy after FPL showed that noise readings from its wind farm maxed out at 44 decibels, roughly the same generated by a 10 mile-per-hour wind.

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