



Wind Power in the Northwest: Frequently Asked Questions

Why should I support wind power projects?

Wind farms are important locally and globally. At home, they stimulate host communities by creating jobs and generating private and public revenue. Farther afield, their clean, renewable energy helps to fight climate change and wean the U.S. from foreign energy supplies.

What kinds of wind turbines are there?

There are two major types of wind turbines: horizontal-axis (propeller style) and vertical-axis (egg-beater style). Almost all large-scale commercial projects are fitted with the horizontal-axis style: a three-bladed rotor that is set atop a tall, tubular steel tower.

How big are the turbines?

Today's turbines stand 400-500 feet tall, from the foundation to the tip of the blade. The span of an average wind turbine rotor is 250 feet, roughly equal to the wingspan of a 747 jetliner.

How do wind turbines work?

As the wind blows, the turbine's rotor and generator change direction to most efficiently capture the wind. As the blades turn, they convert the wind's kinetic power into electricity. The electricity is delivered via transmission lines to utilities, which in turn deliver the power to consumers.

How do the turbines operate?

Each wind turbine runs independently. It turns itself on when conditions are right, and turns itself off when speeds are either too slow (below 10 mph), or too high (above 50 mph).

How much power does a single turbine generate?

The larger the turbine and the windier the spot, the more power it will generate. On average, a wind turbine installed in the Pacific Northwest today produces enough electricity to meet the annual needs of approximately 500 homes.

How much wind power is there in Washington and Oregon today?

As of mid-2009, Washington ranked 5th in the nation for existing wind capacity of 1600 megawatts; Oregon ranked 6th with 1400 megawatts. Wind is the fastest growing type of generation in the United States, accounting for 39% of new power added to the grid in 2009.

Who pays to build wind farms?

Wind development companies are primarily responsible for developing, building, and operating wind farms. This limits the risk to consumers, since the developers bear the brunt of the costs. Private and publicly-owned utilities are increasingly involved in purchasing and operating completed wind farms.

Can land with wind turbines be used for other purposes?

Property owners find that hosting wind turbines is an excellent use of their land. Grazing, farming, and timber production all easily coexist with wind farms. Since a wind farm requires less than five percent of a site's total area, landowners maintain their current practices *and* generate new income!

Do wind farms affect property values?

No. A Department of Energy-commissioned study found no evidence that wind farms have any impact on property values. It is the privilege and right of those who own windy lands to reap the benefits of their property. No matter what else is said and done, landowners should have final say on how they earn their living.

Is wind energy economically feasible?

Yes! The cost of wind-generated power is roughly equivalent to that generated by a natural gas power plant and much cheaper than the costs of a new hydroelectric or nuclear power plant. Like every other energy source, wind power receives federal incentives, such as tax credits, to make it more affordable for the American public.

Who uses the electricity generated by the region's wind farms?

Consumers throughout the Northwest and across the West's interconnected transmission grid use the power generated by Northwest wind farms. Regardless of where the power ends up, wind farms help their base communities by creating jobs, stimulating the local economy, and providing tax revenue that supports essential government services.

What do wind farms do for the communities that host them?

A wind farm brings significant new tax revenues to rural communities. In the Northwest, a 100-megawatt wind project adds over \$1 million per year to county governments and schools. Construction and ongoing purchases inject cash into local economies and create new family-wage jobs. Payments to lease holders – to the tune of approximately \$5000/turbine per year – put additional dollars into local circulation.

Is wind energy a reliable source of power?

Utility managers consider wind energy "intermittent" – not unreliable. No power plant is 100% reliable, and the grid is designed to deal with variability. As more wind farms join the grid in diverse locations, the more reliable wind energy will become. In August 2009, for example, in the course of one hour, the Bonneville Power Administration supplied enough wind-generated electricity to light all of Seattle and Portland.

How does wind power compare to other energy sources?

Wind is clean and renewable – more than you can say for most other energy sources. Our other options pollute the air and the water, produce acid rain and smog, and ravage wildlife habitats. Wind farms do not pollute, nor do they contribute to the devastating effects of climate change.

Do wind farms impact wildlife?

Every wind farm goes through extensive siting and reviews to assess possible environmental impacts. Wind turbines only cause one of every 10,000 human-related bird deaths in America; that is less than tall buildings, airplanes, or vehicles. Far more dangerous is climate change, which has the potential to destroy habitats, kill prey species, and alter food sources – effectively wiping out entire populations of birds and bats.

Is the sound from wind turbines dangerous?

No. According to a recent study done by the American and Canadian Wind Energy Associations, “sub-audible, low frequency sound and infrasound from wind turbines do not present a risk to human health.” They concluded that wind turbines can be annoying, but that there is no such thing as a “wind turbine syndrome.”

What is shadow flicker?

Shadow flicker occurs when – at a precise latitude, wind direction, and height of the sun – rotating wind turbine blades cast shadows upon stationary objects. Because of the extremely specific conditions, most residences neighboring wind turbines will not experience shadow flicker. At most, it happens a few hours per year. Computer modeling has made it possible to predict when it will occur, and wind developers mitigate during these times accordingly.

Does wind energy really help fight climate change?

Including manufacturing processes, wind energy generates less than 2% of the noxious emissions that coal spews into the atmosphere. Of any energy technology, wind turbines contribute the least amount of greenhouse gases over their lifetime. Every 1.5-megawatt wind turbine added to the grid offsets 2,700 tons of carbon dioxide per year, equivalent to removing 480 passenger cars from our highways.

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