

Wind Power: Facts, Myths and Scientific Sources

- **Why wind power?** Wind power is important because it is part of the solution for holding back the worst effects of the climate crisis. To maintain life on Earth as we know it and prevent catastrophes for humans around the planet and prevent mass extinctions of other species, we must replace fossil fuels with clean renewable energy. Wind energy is one of the safest and cleanest renewable energy sources. (1)
- **Why can't rooftop solar solve the problem?** Scientific calculations on future energy needs show that utility-scale wind and solar are essential to reaching clean energy goals. All electricity, transportation and heating needs can be supplied by renewable energy, but small measures, while important, will not be enough. "Industrial" is a term used by opponents but virtually all power on the grid is "industrial" (2)
- **What's wrong with burning fossil fuels, besides climate change?** Seven million premature deaths worldwide and 200,000 in the USA can be attributed to air pollution, which is primarily from burning fossil fuels. Countless numbers of birds and other wildlife die from pollution in the atmosphere, including mining sites and fracking waste sites. People are harmed by leakage and explosions from fossil fuel pipelines. (3)
- **Do wind turbines kill large numbers of birds and threaten extinction of endangered species?** This is one of the biggest exaggerations of anti-wind communications. Siting (layout) of wind farms follows US Fish and Wildlife Service (USFWS) rules including studies of wildlife--migration and nesting of birds and bats--before construction, and monitoring when wind turbines are in operation. Turbines are shut down during peak migration. Wind turbines are a minimal source of harm compared to building collisions, cats (outdoor pets and feral cats kill an average of 14 birds a year each, more than 5 turbines do at typical capacity) vehicle collisions, and toxic substances such as pesticides, herbicides, mercury from coal, and lead hunting shot. The National Audubon Society supports wind power and its research shows that climate change is **by far** the greatest threat for extinction to birds and other wildlife species. Wind farms on the Lake Michigan shore and the Texas Gulf Coast have been in operation for years with minimal harm to birds. (4)
- **Do wind turbines make people sick?** Alleged health effects of wind projects have been analyzed in peer-reviewed medical journals that use scientifically valid measures to compare symptoms of people living near and far from wind projects who are otherwise similar in social circumstances. Their conclusion is that there is no such thing as "wind turbine syndrome"; symptoms are caused by "annoyance" when people do not like the looks of wind turbines or are influenced by opposition fears. "Infrasound" is a natural and common feature of sounds from waves, machinery, music, and even wind in trees, and is not harmful at wind turbine distances from human habitation. (5)
- **Noise?** At required setback distances from homes, wind turbine sounds are about 40-45 decibels, no more than the central air conditioning in a public building. That is the sound level recommended by a World Health Organization (WHO) report in Europe. The WHO does NOT advise against wind farms. (6)
- **Do wind farms interfere with military aviation and radar?** The US Department of Defense (DOD) supports wind energy as it understands the climate crisis is a security threat. Aviation and radar signals are not hampered by wind turbines. DOD approval is required for wind projects to go forward; any potential harm to military aviation or radar would demand a redesign. (7)
- **Do wind farms reduce real estate values?** Many studies across the USA agree there is no effect on real estate values for homes in sight of a wind farm. Many other studies show that the vast majority of people living near wind farms either like them or are neutral. Very few neighbors object once they get used to them. Wind farm construction and operation brings jobs and revenue to farmers and rural towns. (8)
- **What if I just don't like new things in the countryside and don't want to look at tall, unfamiliar structures?** Our grandchildren will ask what we did to protect them from climate catastrophes. We only have a few years to hold the worst effects back. Some people hated cars and electric power lines when they were new. We have to adapt to necessity to save the earth as a livable planet. Wind farms are compatible with agriculture and rural living in many parts of the United States.

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Sources are listed by the numbers on each bullet point:

- (1) www.sciencemag.org/news/2019/04/new-climate-models-predict-warming-surge; 2014 U.S. Climate Assessment. <www.nca2014.globalchange.gov>
- (2) Jacobson, M.Z., Delucchi, M.A., Providing all global energy with wind, water, and solar power, Part I: Technologies, energy resources, quantities and areas of infrastructure, and materials. *Energy Policy* (2010), doi: 10.1016/j.enpol.2010.11.040
- (3) Ciaizzo, F., Ashok, A. Waitz, L., Waitz, S, Yim, H.L., Barrett, S.R.H. (2013) Air pollution and early deaths in the United States. Part I: Quantifying the impact of major sectors in 2005. *Atmospheric Environment*, 79, 198-208. doi.org/10.1016/atmosenv.2013.05.081.
- (4) Erickson, W.P., Johnson, G.D., Young D.P. (2005) A summary and comparison of bird mortality from anthropogenic causes with an emphasis on collisions. USDA Forest Service Gen. Tech. Rep. PSW-GTR-191. Other environmental organizations supporting utility-scale, properly sited wind energy development besides the Sierra Club, are: The Audubon Society: "314 Species on the Brink" report at < <http://climate.audubon.org>> shows the devastating effects of climate change on species loss and endangerment. Also The Nature Conservancy <global.nature.org> and The Environmental Defense Fund www.edf.org/climate/energy
- (5) Knopper, L. D. & Ollson, C. A. (2011) Health effects and wind turbines: A review of the literature. *Environmental Health* 2011, **10**:78 doi:10.1186/1476-069X-10-78
- (6) <http://www.euro.who.int/en/health-topics/environment-and-health/noise>
- (7) archive.defense.gov/pubs/pdfs/WindFarmReport.pdf
- (8) Lawrence Berkeley Laboratories
Energy Research and Social Science. DOI: <https://doi.org/10.1016/j.erss.2017.05.019>

More corrections of false statements about wind development:

They are not full of oil that leaks into land or water. They do not use harmful amounts of concrete. Energy costs to construct them are compensated by 6 months or less of operation. They produce large quantities of power and are the largest power source for several states and countries. All wind farm companies must put money aside to deconstruct/replace them if necessary.

Other good things: Wind power creates good jobs both in construction and operations. Wind farms bring payments that help farmers stay in business and reduce community taxes. A wind turbine takes up about ¼ of an acre; crops and grazing can continue around them. Rapid advances in battery storage and combining wind, solar and energy storage will solve the issue of what happens when the wind doesn't blow.