

Big River Wind



Common Questions

Do wind turbines make a sound while they are operating?

Wind projects are generally quiet neighbors. When siting wind projects, sound modeling studies are done to ensure appropriate turbine locations are designed to meet regulations, and comply with local/state sound restrictions as applicable. Modern wind technologies incorporate sound-reduction features, such as aero-dynamic blade profiles and sound-absorbing materials and to minimize the impact on surrounding areas. In addition, turbine control systems are programmed to adjust rotor speeds based on wind conditions, minimizing the generation of aerodynamic noise, especially during periods of low wind speeds.

What health impacts are there from living near a wind farm?

There is no authoritative evidence that wind turbines represent a risk to human health.

The Massachusetts Department of Environmental Protection and Public Health commissioned a panel of experts with backgrounds in public health, epidemiology, toxicology, neurology, sleep medicine, neuroscience, and mechanical engineering to analyze “the biological plausibility or basis for health effects of turbines (sound, vibration, and flicker).” The review of existing studies, which included both peer-reviewed and non-peer-reviewed literature, found the following²:

- There is no correlation between wind turbines and any of the following medical symptoms: heart disease, tinnitus, vertigo, panic attacks, migraines, and sleep deprivation.
- Infrasound levels near wind turbines cannot impact the vestibular system to cause dizziness, vertigo, imbalance, nausea, ringing in the ears, hearing loss, and cognitive impairment.
- There is no association between sound from wind turbines and psychological distress or mental health.
- There is no evidence of an association between sound from wind turbines and pain and stiffness, diabetes, high blood pressure, tinnitus, hearing impairment, cardiovascular disease, and headache/migraine.

Will birds be impacted by operating wind turbines?

Wind turbines are sited with wildlife in mind. Prior to filing for a permit with the local and/or state permitting authority, AES will conduct studies that evaluate the flight and migration patterns of local and domestic avian species, as well as nesting and feeding areas for those species. These studies will be conducted in conjunction with local and state environmental regulatory agencies, including the National Fish and Wildlife Service and the Iowa Department of Natural Resources. The studies will assist the development team in understanding the best location to site each turbine, allowing for minimal impact on local and domestic avian species.

How will farmland be impacted?

The footprint for a wind turbine is relatively small, allowing landowners to continue growing crops or whatever the landowner chooses among the turbines. A wind turbine plus the access road typically utilizes approximately ½ acre of land. Once the project is decommissioned at the end of its operational life, the turbines will be removed, the ground will be remediated, and the plot where the turbine was located can be used by the participating landowner for farming or whatever they see fit at the time.

What happens if a tornado or other hazardous weather occurs in proximity to a wind project?

If severe weather, such as a tornado, was to occur within the Project area and cause damage to the wind turbines, AES would be liable for cleaning up the impacted area and properly disposing of the damaged components. Furthermore, AES will have insurance on the Big River Wind project, which helps to ensure that following any damage incurred to the Project, proper clean up and replacement would occur. All payments associated with clean-up and replacement that may be due to a severe weather event would be paid for by the Project. The community will not be liable for any payments or damage done to the Project due to severe weather.

With advancements in technology and well-tested equipment that is reliable and safe for harnessing wind, turbines can withstand high winds. According to the International Electrotechnical Commission, wind turbines are required to be built to withstand sustained winds of 112 miles per hour (mph) and peak 3-second gusts of 156 mph.² Turbines generally will purposefully not operate during extreme weather conditions to avoid damage.

What effect will the project have on property values of adjacent and nearby residences?

National studies have found no evidence of adverse impacts on long-term property values in rural areas.

The Lawrence Berkley National Laboratory conducted a study to determine if wind farms impacted property values in urban and non-urban counties. Urban counties are defined as populations greater than or equal to 250,000 with non-urban areas defined as a population less than 250,000. There are a lot of market conditions and factors that influence home values: quality of local schools, tax valuation, availability of homes, condition of homes – just to name a few. It is hard to pinpoint just one factor that causes a drop in home value.

This study found zero evidence of adverse impacts on long-term property values in rural areas, where most wind projects are constructed. In fact, wind farms are drivers for economic development in host communities. Generally, we find that a land agreement adds value to a property since it provides an additional, typically passive, income stream. They bring with them an increase in tax revenue, an addition of local construction jobs, increased income to local landowners through lease payments and a beneficial impact on the local economy.³

How does the project generate energy and give it to locals?

Wind projects generate energy by converting the turning motion of the blades (kinetic energy) into electrical energy, resulting in electricity. The output is dependent on the size of the blades and the turbine itself. This energy is then transferred to the grid, where it is used by the nearest sources of demand.⁴ Electricity, once transferred to the grid, is utilized where the demand is, meaning that electricity is delivered instantaneously where a light switch or an appliance is turned on. Electricity continuously flows down the line until demand pulls it off.

What is the local community gaining from the project? Does it pay taxes?

AES will pay property taxes on the land leased to the project where wind turbines are placed. Tax revenue from wind energy projects in Iowa primarily comes from property taxes, and they are taxed by a policy established by the Iowa Legislature, whereas they are taxed based on their net acquisition cost. The taxes are capped at 30% of the net acquisition costs for all wind projects in Iowa.

Wind energy powers development in local communities by providing new tax revenue that may be used for local services.

Is it true that the owner/operator of the project won't decommission the project, and the landowners will be left to clean up the mess?

No. Project developers are required to develop and follow a Decommissioning Plan for removing equipment and restoring landowners' property to its previous condition when the project is no longer operational. The plan will be included in the Project's permit application. All decommissioning activities will be paid for and performed by the owner/operator of the wind facility. AES will also post a decommissioning bond as part of the project permit requirements with Des Moines County. The county will have these funds to decommission the project if needed. No costs will be accrued nor will work be required by the participating landowners and members of the community.⁷

Will turbines have blinking lights at night?

The Federal Aviation Administration (FAA) requires wind turbines to incorporate nighttime obstruction lighting – using the FAA L-864 aviation red flashing strobe to ensure the turbines are visible at night both from the ground, as well as from the sky.⁵ Similar to how radio towers, cell phone towers, or other tall structures are required to have proper nighttime lighting, wind turbines also need to be visible to aviators navigating the nighttime sky.

The wind industry has come a long way in mitigating the light pollution that comes from the strobing lights located on top of tall structures such as radio towers and wind turbines. Aviation Detection Lighting Systems (ADLS) are a sensor-based system that detect aircraft as they approach a facility. Once an aircraft is detected, the lights on top of the wind turbines will turn on, signifying to the pilot the structure's location. The lights will remain on until the aircraft has left the coverage area of the ADLS.⁶

Who pays for road damage during construction?

AES will work with Des Moines County to complete a Road Use Agreement as part of the permit requirements.

The Road Use Agreement will consist of a commitment by AES to pay for the repair of damaged roads, bridges, and culverts after construction has been completed, ensuring they can be returned to their original condition. An assessment of the roads will be conducted prior to construction and after completion to determine whether they need to be repaired or completely rebuilt. The Project will bear the costs for the damage done to the roads during construction.

Can helicopters land within a wind project?

Helicopters can land within a wind project as needed for emergency response. This project, like all other wind projects, will go through the Determination of No Hazard process with the FAA and the Department of Defense. Through this process, we will be able to design the project without any impact on airspace or radar.

What happens if the turbine catches on fire?

AES wind projects are monitored remotely 24/7 and have a local technician on site to ensure a swift response in the rare case of any emergency events. Many new models of turbines come with fire suppression systems designed to stop a fire inside the turbine before it has even begun, through smoke and heat sensors that trigger aerosol extinguishers within the turbine.

How does turbine height impact a project?

Turbine technology is always improving, and the industry has been trending towards taller turbines for several years. While there are no turbines with a total height taller than 590' in Iowa currently, there are over 1,100 turbines above 600' in the country. AES will only be considering turbines with a proven track record of safety and performance.

Taller turbines have several benefits.

1. Fewer Turbines Needed. Taller turbines generally have a higher individual generation capacity than older/smaller turbines. This means that fewer total turbines are needed.
2. Reduced Viewshed Impact. In addition to having a lesser viewshed impact by simply having fewer turbines, taller turbines are sited further apart to maximize wind conversion efficiency with longer blades.
3. Quieter Project. Taller turbines are quieter because their blades spin slower, there are fewer total turbines, and the source of the sound is further from the ground and more spread apart. Additionally, modern turbines have improved blade designs, which significantly reduce sound.

Where do wind technicians go during a storm?

If there are storms in the area, AES standard safety protocol asks all technicians to leave the turbines and muster inside the operations and maintenance building located on the project site.

What happens if a turbine is struck by lightning?

All turbines AES considers for this project will be designed to withstand lightning strikes. It is industry standard for turbines to have lightning receptors on the blades, a down-conducting system that sends the lightning current down through the wind turbine, an earthing system designed to dissipate and discharge lightning strikes, shielding from magnetic and electrical fields, and protection from overvoltage and overcurrent.

Sources

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