

# Wind farms, key to clean-energy efforts, threaten birds and bats: Developers urged to plan for wildlife

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Terry Husted lives in DeWitt County, a major pathway for migrating birds in central Illinois. After a company submitted plans to construct a

wind farm in his area, Husted said he grew worried about the potential for collisions.

"The birds hunt, so they focus on the ground and what they're looking for, and don't really focus on where they're going," Husted said. "So they accidentally hit wind turbines, and it kills them."

Illinois is the fifth-largest state for [wind energy](#), and produces about 7% of the United States' wind energy, according to the American Clean Power Association, a renewable energy industry group.

But, hundreds of thousands of birds and nearly 1 million bats die every year in collisions with wind turbines throughout the United States and Canada. As scientists look for ways to mitigate the effects of climate change, clean energy producers need to keep [wildlife populations](#) and their habitats in mind, experts say.

"More than half of the (bat) species in the U.S. are either declining or at some risk of decline," said Winifred Frick, chief scientist at Bat Conservation International. "Wind energy is the leading cause of mortality for our long-distance migratory species. And that mortality rate is worryingly high."

Husted said the wind farm in DeWitt County went through his county's approval process twice, ultimately passing a second county board vote. He said there was strong opposition from the community at both meetings.

"It passed, although they had not addressed our concerns," Husted said. "In all of the public meetings, there were just a few people on the 'for' side and a ton of people on the 'against' side. But we were characterized as just a vocal minority."

The wind farm, operated by Enel Green Power, has been in operation for nearly a year. Matthew Saville, a site manager for the wind project, said no eagle deaths have been observed at the site so far.

"By avoiding fossil fuel emissions, wind power promotes clean air and water for wildlife," Saville said.

"Properly sited wind energy has been endorsed by leading environmental and wildlife groups including the Audubon Society, and Enel diligently studies wildlife patterns to design projects that minimize potential impacts. Wind power's impact on bird mortality is extremely small when compared to other sources, such as collisions with tall buildings and communications towers, vehicle strikes, [lead poisoning](#), and habitat conversion."

Mona Khalil, who leads the Energy and Wildlife Research Program at the U.S. Geological Survey, said significant research still has to be done to determine the overall impact of turbines on bat and bird populations. But it's clear that [wind farms](#) such as the one in DeWitt County present a problem, she added.

Khalil said in most states, including Illinois, it is not mandatory to track or share data measuring bird or bat deaths near wind farms, she said.

"What would be really helpful is if we had better access to this kind of information, then we could really do the kinds of studies that need to be done in order to get a better sense of what the impacts are," Khalil said.

Meaghan Gade, a program manager with the Association of Fish & Wildlife Agencies, which represents state and federal agencies and includes the Illinois Department of Natural Resources among its members, said the organization wants to see developers take wildlife into consideration.

"There are no states that are trying to stand in the way of renewable energy development," Gade said. "What the states are focused on is how can we do that development while mitigating avoidable impacts to wildlife."

Jason Ryan, a spokesperson with the American Clean Power Association, said wind farms across the country have implemented mitigation tactics to reduce the impact of turbines on wildlife.

Other sources of energy, including hydraulic fracking, pose a much higher risk for birds, he said.

"Wind energy companies are recognized leaders in their efforts to understand the potential impacts to wildlife through preconstruction studies and design projects carefully to avoid and minimize wildlife impacts," Ryan said in a statement. "Renewable energy offers the safest and cleanest approach to generating electricity, decreasing air and water pollution that negatively impacts humans and wildlife alike."

According to Khalil, some large farms have implemented technologies that monitor when animals are coming near and have developed strategies to slow collisions. A tower that can detect species flying within 1 kilometer and stop wind turbines on the farm from rotating is one example.

"Installing those types of technologies that can detect if there's actual risk is really good," Khalil said. "If facilities incorporate that into their design and practice operational changes when a risk to an animal is there, that would reduce fatalities."

There are a few other methods that could lower bat and bird deaths, according to Frick.

One is to change the "cut-in speed," the speed at which turbine blades spin to generate power. Frick said if wind farms changed their power-generating speed to 11 mph, for example, they could halve the number of bats killed, and at 13 mph, fatalities could decrease between 60% and 80%. Cut-in speeds currently vary between 6 and 9 mph, according to the U.S. Department of Energy.

The higher the cut-in speed, the fewer bats and birds would be killed because they can't fly into the structures as easily when the wind speeds are higher, Frick said. Most bat fatalities occur when turbine speeds are low, she said, so requiring that blades spin faster to produce electricity could eliminate some of those deaths.

But that's often not an attractive solution for farms looking to maximize their electricity production.

Turbines also often continue spinning below the cut-in speed when they are not actively producing electricity. Frick said halting turbines during these periods would not tangibly affect the energy produced, and could be another option to help limit bird deaths.

"You can change the tilt of the blades so they won't catch any wind at very low wind speeds," Frick said. "If they're not spinning, they basically are harmless. And it's not costing you any power because they aren't doing much at those speeds anyway."

Bethany Straw, an assistant coordinator at the North American Bat Monitoring Program, said development companies should also ensure renewable energy facilities are being built outside bird and bat habitats. Straw said bats and birds are usually attached to their homes and migratory paths, and when structures are built near a water source, a nest or prey, they can be particularly dangerous.

Encouraging the wind industry to preserve habitats has been a particular focus for bat conservationists, according to Straw.

Deaths from wind energy are one of the two leading causes of death for bats in the country, according to Straw. The other is [white-nose syndrome](#), a fungus that attacks the skin, ear and wind membranes of hibernating bats, and affects their immune system and metabolism. The fungus killed so many bats in the Illinois Caverns in the southwest part of the state that local officials closed them to tourists for more than a decade.

"Habitat change is kind of this nebulous stressor because it can occur in so many different ways, and then those cascading effects you observe can be different for different bats in different habitats," Straw said. "If we can conserve these really important habitats, that helps the population."

Michelle Braswell lives in Clinton County, Iowa, halfway between Des Moines and Chicago. In February, she learned that her neighbor had applied for a permit to construct a wind turbine 1,800 feet from an eagle's nest on her property.

Braswell said she rallied the community around stopping the project, creating yard signs and making a Facebook group with more than 800 members. She said she wants people to be more wary of where they are building turbines.

"So many lobbyists say this is about landowner rights, and a landowner should be able to put wind turbines on their ground wherever they want," Braswell said. "But what about the eagles? They don't stand a chance against these huge blades."

Braswell said there have been multiple delays in the permit process for

her neighbor's structure because of unrelated complications, including a lack of voting members at one meeting and a tornado warning at another. The structure is still waiting for approval.

Overall, Frick said, the larger conflict between renewable energy sources and wildlife runs deeper than just the relationship between wind farms and birds.

Wind and [solar power](#) are expected to play dominant roles in expanding the nation's supply of clean electricity and are crucial to efforts to reach net-zero emissions, studies show. The Biden administration has set a goal of a carbon-free power sector by 2035 and net-zero carbon emissions economy-wide by 2050. In Illinois, a 2021 state law outlaws coal- and gas-fired electricity by 2045.

While habitat loss and collision risks are also concerns with solar farms, there is not as much evidence about the threat to wildlife, according to experts.

"With wind farms, it's easy to say we know survival is impacted, right?" said Liz Kalies, a lead renewable energy scientist at the Nature Conservancy. "We know there are direct strikes. We know there's direct mortality from wind farms. Solar is trickier because we don't have very much direct mortality."

Kalies said there are a number of ways that solar developers can also prioritize wildlife. Like with wind farms, building solar energy in natural habitats can affect mammals and birds.

"When you cut down forests, when you remove natural habitat, it's certainly going to be a loss," Kalies said. "But when you start with degraded lands, mine lands, brownfields, landfills, everything you do from that point on is an improvement."

Some solar farms in wildlife-heavy habitats have implemented design tools such as animal-friendly fencing, Kalies said, so that nearby animals can continue to use the space. Others have pursued vegetation management, planting wildflowers and other pollinator habitats inside the solar farm to preserve the existing natural habitat.

Kalies said there is still research being done to measure the overall impact of solar farms on the surrounding landscape. But, she said, scientists have observed all types of animals, from bobcats to possums, on solar farms.

Overall, Kalies said, [wildlife conservation](#) needs to be a consideration for any renewable energy site. Frick agreed.

"Even if things like solar panels are preferable to [wind turbines](#) when it comes to bats, we need to be focusing on not converting any kind of animal habitat into solar fields or any other kind of development site," Frick said. "It's all part of a bigger balancing act."

According to Gade, project manager with the Fish & Wildlife Agencies, there are currently no incentives or regulations that require developers to take wildlife into account.

But conservation should start at the beginning of any development process, she said.

"Remember that we can do both," Gade said. "We can have renewable energy development, which is necessary to meet emission reduction goals, but we can also have wildlife conservation. Let's make development happen responsibly."

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