

NO, NOT THAT BAT SIGNAL!

UMass Amherst team developing blade-mounted ultrasonic warning device to alert bats to potential danger



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A team of researchers from the University of Massachusetts Amherst and Texas A&M University is developing a blade-mounted, ultrasonic whistle for wind turbines that will protect bats by warning them to stay away.

The UMass team will focus on designing and manufacturing of a whistle-like device based on a bat larynx, powered by air flowing over the wind turbine blade. Researchers plan to test the whistle design on bats and create a series of devices that can effectively induce a flight avoidance response for at-risk bat species. Ultimately, the goal is to provide a reliable, cost-effective means of alerting bats to the presence of moving turbine blades as a way to lower bat mortality at wind facilities and reduce regulatory uncertainty for wind facility developers.

The project is funded by a \$250,000 grant from the U.S. De-

partment of Energy's Office of Energy Efficiency & Renewable Energy and a \$62,500 grant from the Massachusetts Clean Energy Center.

As air flows over the wind turbine blade, the device will produce a deterrence signal. The project will address the challenge of deterring bats across the entire wind-turbine rotor and test whether a pulsed noise, similar to a bat call, can act as an effective warning.

At UMass Amherst, Paul R. Sievert, environmental conservation, will direct the project. Yahya Modarres-Sadeghi, UMass Amherst professor of mechanical and industrial engineering, and collaborator Michael Smotherman, biology, from Texas A&M University, will oversee activities in their respective programs.

Also at UMass Amherst, Elizabeth Dumont, biology, and Matthew Lackner, mechanical and industrial engineering, will serve advisory

roles in connection with bat larynx modeling and whistle placement, respectively. Other members of the research team are UMass Amherst graduate student fellows Zara Dowling and Daniel Carlson who are part of the Integrative Graduate Education and Research Traineeship (IGERT) program.

These whistle devices require no external power source, should require little maintenance and will be small and cost-effective, the UMass Amherst team says. It is expected that because of the small size of these devices, they can be placed at intervals along the turbine blade.

This and other DOE funded projects are designed to remove barriers to wind power deployment and increase the acceptance of wind power technologies by addressing siting and environmental issues.

— Source: University of Massachusetts Amherst